pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0247570**
Facility Type	**Municipal**	APS ID	**535590**
Major / Minor	**Minor**	Authorization ID	**1411613**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Fredericksburg S&W Authority**	Facility Name	**Fredericksburg Authority Camp Strauss Monroe Valley**
Applicant Address	113 East Main Street (P O Box 161)	Facility Address	7 Kreider Lane
	Fredericksburg, PA 17026-0161		Jonestown, PA 17038
Applicant Contact	Dale Bevans	Facility Contact	Dusty Keller
Applicant Phone	(717) 865-7452	Facility Phone	(717) 865-0774
Client ID	85895	Site ID	645621
Ch 94 Load Status	Not Overloaded	Municipality	Swatara Township
Connection Status	No Limitations	County	Lebanon
Date Application Received	September 26, 2022	EPA Waived?	Yes
Date Application Accepted	October 11, 2022	If No, Reason	

Purpose of Application: New STP.

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated domestic wastewater from Fredericksburg Sewer & Water Authority's (Authority) Camp Strauss Monroe Valley wastewater treatment plant. The Authority owns, operates, and maintains the WWTP. The facility is located in Swatara Township in Lebanon County. The sewer collection system is not combined in these areas and there are no bypasses or overflows in the collection system. The plant serves the Monroe Valley area of both Bethel and Swatara Townships in Lebanon County. All flow enters the Little Mountain Road Pump Station. Influent pump station has a comminutor and two pumps. Influent is pumped to one of two SBR units. SBRs each has a complete cycle in 320 minutes (mix/fill, react/fill, react, settle and decant). The treatment plant has a hydraulic design capacity of 0.1MGD and an annual average design capacity of 0.1MGD. The organic design capacity of the facility is 208 lbs/day-BOD5. The discharge goes to Swatara Creek classified for warm water fishes (WWF) and Migratory Fishes (MF). The existing NPDES permit was issued on June 15, 2018 with an effective date of July 1, 2018 and expiration date of June 30, 2023. The applicant submitted a timely NPDES renewal application to the Department is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A.

1.1 Sludge use and disposal description and location(s):

Digested sludge is dewatered with a trailer mounted volute press prior to ultimate disposal at Greater Lebanon Refuse Authority Landfill.

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	December 8, 2023
X		*Maria D. Bebenek for Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	December 8, 2023
X		*Maria D. Bebenek* Maria D. Bebenek, P.E./ Program Manager	December 8, 2023

Summary of Review

1.2 Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

1.3 Changes to the existing Permit

Quarterly E. Coli monitoring has been added.

1.4 Existing limitation and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	20	33	XXX	25	40	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	25	37	XXX	30	45	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

1.5 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.1
Latitude	40º 28' 5"	Longitude	-76º 30' 22"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Swatara Creek (WWF, MF)	Stream Code	09361
NHD Com ID	56395795	RMI	44.39
Drainage Area	170	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	11.1	Q_{7-10} Basis	USGS Gage Station
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	City of Lebanon Water Authority		
PWS Waters	Swatara Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	>5

Changes Since Last Permit Issuance:

1.6 Water Supply Intake

The closest water supply intake located downstream from the discharge is for the City of Lebanon Water Authority approximately 5 miles downstream. Because of the dilution and distance downstream, the discharge will have no impact on the intake.

2.0 Treatment Facility Summary

Treatment Facility Name: Monroe Valley/Camp Strauss STP

WQM Permit No.	Issuance Date
3804404	1/25/2005
3804404 A-1	3/2/2017

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	208	Not Overloaded	Aerobic Digestion	Combination of methods

Changes Since Last Permit Issuance: None

2.1 Treatment Facility Details

The treatment plant consists of influent pump station with comminutor, 2 SBR tanks, one aerobic digester, post EQ tank and UV for disinfection. Trailer mounted volute press designed by PW Tech is used for sludge dewatering prior to ultimate disposal.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from September 1, 2022 to August 31, 2023)

Parameter	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22
Flow (MGD) Average Monthly	0.02234	0.02312	0.02247	0.02247	0.022	0.0259	0.02288	0.02578	0.03051	0.0222	0.02255	0.02249
Flow (MGD) Daily Maximum	0.03118	0.03288	0.03662	0.0518	0.03333	0.0491	0.03041	0.03825	0.06011	0.0298	0.03690	0.04246
pH (S.U.) Daily Minimum	6.44	6.68	5.84	6.41	6.61	6.36	6.60	6.21	6.59	6.36	6.43	6.45
pH (S.U.) Daily Maximum	7.66	7.16	7.00	7.19	7.25	6.94	6.94	6.99	7.00	7.09	6.84	6.98
DO (mg/L) Daily Minimum	5.13	5.57	5.53	4.94	6.05	5.56	6.02	6.04	6.48	5.75	6.03	5.59
CBOD5 (lbs/day) Average Monthly	1.1	0.9	1.0	1.7	1.2	1.5	0.7	1.2	0.7	0.4	1.9	0.7
CBOD5 (lbs/day) Weekly Average	1.5	1.1	1.4	2.3	1.2	2.0	0.8	1.6	0.8	0.4	2.5	0.9
CBOD5 (mg/L) Average Monthly	4.8	4.8	5.7	9.8	6.6	6.0	3.9	5.7	3.0	2.3	7.6	2.8
CBOD5 (mg/L) Weekly Average	7.2	5.9	8.1	13.5	6.7	6.7	4.3	6.1	3.1	2.4	8.1	2.9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	22	31	57	40	49	23	29	24	22	35	36	56
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	23	31	76	53	51	25	34	35	29	38	37	74
BOD5 (mg/L) Raw Sewage Influent Average Monthly	105	187	417	241	283	93	161	104	106	201	191	256
TSS (lbs/day) Average Monthly	2.5	2.5	3.8	3.9	1.8	2.2	1.2	0.9	1.5	1.6	3.3	2.1
TSS (lbs/day) Raw Sewage Influent Average Monthly	25	31	68	40	59	18	18	15	20	33	48	73

TSS (lbs/day) Raw Sewage Influent Daily Maximum	28	32	88	42	82	19	19	22	24	42	48	97
TSS (lbs/day) Weekly Average	2.6	3.1	4.9	6.5	2.3	2.5	1.4	1.1	1.6	1.7	4.0	2.2
TSS (mg/L) Average Monthly	11.0	13.5	20.9	22.4	10.3	8.7	6.8	4.3	6.6	8.6	15.8	9.0
TSS (mg/L) Raw Sewage Influent Average Monthly	121	187	495	238	342	71	97	66	97	194	255	333
TSS (mg/L) Weekly Average	12.4	17.0	29.0	38.0	12.5	8.8	7.6	4.5	7.6	10.0	23.0	11.5
Fecal Coliform (No./100 ml) Geometric Mean	< 1	3	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 2	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	3	2	1	5	< 1	< 1	1	< 1	1	4	2
UV Transmittance (%) Daily Minimum	2.3	1.1	1.5	0.6	2.1	3.4	2.2	1.9	1.8	1.6	0.8	2.1
Nitrate-Nitrite (mg/L) Daily Maximum			64.2						64.6			
Total Nitrogen (mg/L) Daily Maximum			66.76						66.76			
Ammonia (mg/L) Daily Maximum			1.4						20.7			
TKN (mg/L) Daily Maximum			4.49						26.0			
Total Phosphorus (mg/L) Daily Maximum			14.4						14.4			

3.2 Effluent Violations for Outfall 001, from: October 1, 2022 To: August 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	06/30/23	Daily Min	5.84	S.U.	6.0	S.U.
DO	05/31/23	Daily Min	4.94	mg/L	5.0	mg/L

3.3 Summary of Discharge Monitoring Reports (DMRs):

DMRs reviewed for the facility for the last 12 months of operation, presented on the table above in section 3.1 indicate permit limits have been most of the time Two effluent violations were noted on DMRs for the period reviewed presented on table 3.2. The violations appear to be a one-time occurrence.

3.4 Summary of Inspections:

The facility has been inspected a couple times during last permit cycle. No effluent violations were found during plant inspections. The facility is operated and maintained well.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .1
Latitude 40º 28' 5.00" **Longitude** -76º 30' 22.00"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitation

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: TRC is not applicable to this facility

4.3 Water Quality-Based Limitations

4.3.1 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

4.3.2 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for $CBOD_5$, NH_3-N and DO in permits. The model simulates mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits.

4.3.3 Receiving Stream

The receiving stream is the Swatara Creek. According to 25 PA § 93.9, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List N and State Watershed 7-D. It has been assigned stream code 09361. According to eMapPA, the segment of Swatara Creek receiving the discharge is attaining its designated uses

4.3.4 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No 01573000 on Swatara Creek at Harper Tavern. The Q_{7-10} and drainage area at the gage is 22.1ft3/s and 337 mi^2 respectively. The resulting yields are as follows:

- Q_{7-10} = (22.1ft^3/s)/337 mi^2 = 0.0656ft^3/s/ mi^2
- Q_{30-10} / Q_{7-10} = 1.40
- Q_{1-10} / Q_{7-10} = 0.80

The drainage area at discharge is calculated by USGS StreamStats = 170mi^2

The Q_{7-10} at discharge = 170 mi^2 x 0.0.0656ft^3/s/mi^2 = 11.1 ft^3/s.

4.3.5 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

*	Discharge pH	= 6.45 (July -Sept DMR median)
*	Discharge Temperature	= 25 ^{o} C (Default)
*	Stream pH	= 7.0 (Default)
*	Stream Temperature	= 20^{o}C (Default)
*	Background NH_3-N	= 0.0 (default)

4.3.6 $CBOD_5$

Due to the proximity of Fort Indiantown Gap discharge (PA0028142) and Northern Lebanon County Authority Discharge to Camp Strauss Monroe Valley discharge they were modeled together. The results of the WQM 7.0 Model presented in attachment B indicate that for a discharge of 0.1 MGD from Camp Strauss Monroe Valley STP, an average monthly limit (AML) of 25mg/l $CBOD_5$ is required to protect the water quality of the stream. This limit is consistent with the existing permit and the STP is consistently complying with the limitation. Therefore, a limit of 25mg/l AML, 40mg/l average weekly limit (AWL) and 50 mg/l IMAX are again recommended for the current permit renewal. Mass limits are calculated as follows:

Mass based AML (lb/day) = 25 (mg/L) × 0.1(mgd) × 8.34 = 20
Mass based AWL (lb/day) = 40(mg/L) × 0.1(mgd) × 8.34 = 33

4.3.7 NH_3-N

The attached model results of the WQM 7.0 stream model (attachment B) also indicates that a summer limitation 21.5 NH_3 as a monthly average is necessary to protect the aquatic life from toxicity effects. For winter months, monitoring will be required in the permit.

4.3.8 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement per DEP guidance.

4.3.9 Total Suspended Solids (TSS):

There is no water quality criterion for TSS. A limit of 30 mg/l AML will be required based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/l per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2)

Mass based AML (lb/day) = 30 (mg/L) × 0.1(mgd) × 8.34 = 25
Mass based AWL (lb/day) = 45(mg/L) × 0.1(mgd) × 8.34 = 37

4.3.10 Total Residual Chlorine:

The discharge does not have any reasonable potential to cause or contribute to a water quality standards violation for total residual chlorine since the permittee utilizes UV instead of chlorine for wastewater disinfection. Therefore, the proposed permit does not contain effluent limits for total residual chlorine. The permittee may use chlorine-based chemicals for cleaning and is required to optimize chlorine usage to prevent negative impacts on receiving stream. Daily UV intensity monitoring (mW/cm^2) is required in the permit to ensure efficiency of the UV unit..

4.3.11 Toxics

A reasonable potential (RP) analysis was done for pollutants sampled in support of the permit renewal application. All pollutants that were presented in the application sampling and additional sampling data were entered into DEP's Toxics Management Spreadsheet (TMS) to calculate WQBELs. The results of the TMS presented in attachment C indicate discharge levels for all pollutants are well below DEP's target quantitation limits and the calculated WQBELs, therefore, no monitoring or limitation is recommended.

The recommended limitations follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

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4.3.12 Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by DEP based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) are required to monitor and report TN and TP during permit renewal and any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. EPA published Chesapeake Bay TMDL in December of 2010. In order to address the TMDL, Pennsylvania developed Chesapeake Watershed Implementation Plan (WIP) Phase 1, Phase 2 and currently Phase 3 WIP and a supplement to the WIPs to be implemented with the original Chesapeake Bay Strategy.

As outlined in the current Phase 3 WIP and the current supplement to the WIP, re-issuing permits for significant dischargers would follow the same phased approach formulated in the original Bay strategy whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewals

As outlined in the current Phase 3 WIP and the current supplement to the WIP, re-issuing permits for significant dischargers would follow the same phased approach formulated in the original Bay strategy whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewals. This facility is classified as a phase 5, and has been monitoring Total Phosphorus, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen and Total Nitrogen, and will continue to monitor and report the daily maximum concentration during the next permit cycle semi-annually.

4.3.13 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E.coli. As a result, DEP is including monitoring requirements for E. Coli in new and

renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD and 1/year for design flows of 0.002 – 0.05 MGD. Your discharge of 0.1 MGD requires 1/quarter monitoring as included in the permit

4.3.14 Influent BOD and TSS Monitoring

The permit will include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements, per DEP policy.

4.3.15 Industrial Users

This facility does not receive wastewater from any significant industrial users.

4.3.16 Pretreatment Requirements

The design annual average flow of the treatment plant is 0.1 MGD and the facility receives no flow from significant Industrial users. EPA does not require development of pretreatment program for facilities with design flow less than 5MGD. However, the permit contains standard conditions requiring the permittee to monitor and control industrial users if applicable.

5.0 Other Requirements

5.1 The permit contains the following special conditions:

The permit contains the following special conditions:

Stormwater Prohibition, Approval Contingencies, Proper Waste/solids Management, Restriction on receipt of hauled in waste under certain conditions and Chlorine minimization requirement

5.2 Stormwater

There is no stormwater outfall associated with this facility.

5.3 Anti-backsliding

Not applicable to this permit

5.4 Antidegradation (93.4):

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.5 Class A Wild Trout Fisheries:

No Class A Wild Trout Fisheries are impacted by this discharge.

5.6 303d listed stream

The discharge is not located on a 303d listed stream segment.

5.7 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.8 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	20	33	XXX	25	40	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	25	37	XXX	30	45	60	2/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	18	XXX	XXX	21.5	XXX	43.0	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ultraviolet light Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

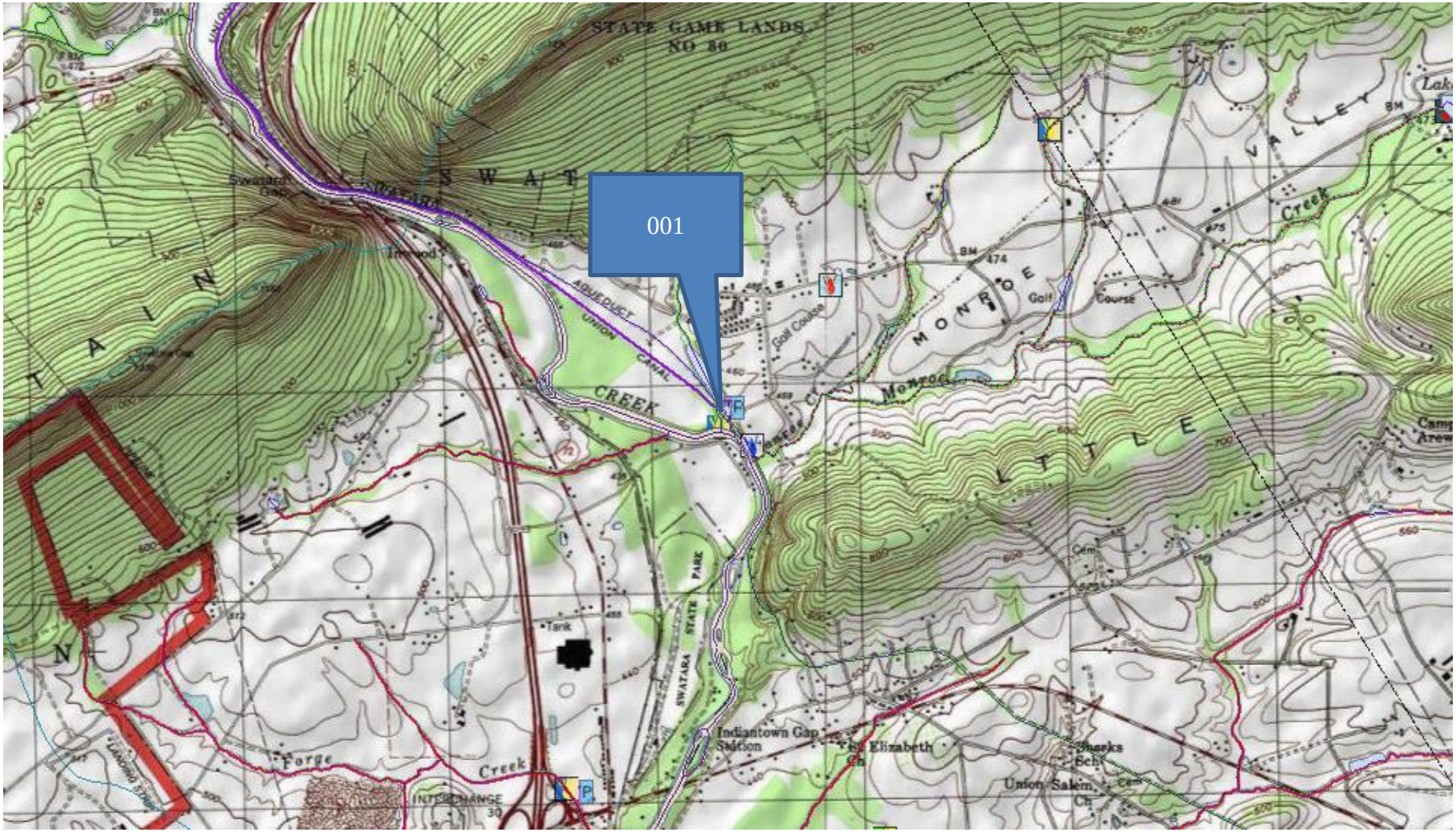
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

Compliance Sampling Location: At Outfall 001

7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment C)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent limitation for individual sewage permit
☒	Other: WIP III and Supplement

8. Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07D	9361	SWATARA CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
44.390	Monroe Valley	PA0247570	0.100	CBOD5	25		
				NH3-N	21.76	43.52	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
39.220	Nor Leb Co Auth	PA0080748	0.750	CBOD5	25		
				NH3-N	21.76	43.52	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
29.700	Fort IndianTG	PA0028142	1.000	CBOD5	25		
				NH3-N	21.76	43.52	
				Dissolved Oxygen			5

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9361	SWATARA CREEK	44.390	417.00	170.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Monroe Valley	PA0247570	0.1000	0.1000	0.1000	0.000	25.00	6.45

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9361	SWATARA CREEK	**39.220**	392.00	291.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Nor Leb Co Auth	PA0080748	0.7500	0.7500	0.7500	0.000	25.00	7.20

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9361	SWATARA CREEK	**29.700**	363.00	323.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Fort IndianTG	PA0028142	1.0000	1.0000	1.0000	0.000	20.00	6.90

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9361	SWATARA CREEK	**22.200**	343.19	371.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07D	9361	SWATARA CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
44.390	11.05	0.00	11.05	.1547	0.00092	.833	58.99	70.86	0.23	1.385	20.07	6.98
39.220	18.91	0.00	18.91	1.3149	0.00058	.926	80.42	86.82	0.27	2.142	20.33	7.00
29.700	20.99	0.00	20.99	2.8619	0.00050	.951	87.24	91.78	0.29	1.593	20.28	6.99
Q1-10 Flow												
44.390	8.84	0.00	8.84	.1547	0.00092	NA	NA	NA	0.20	1.566	20.09	6.98
39.220	15.13	0.00	15.13	1.3149	0.00058	NA	NA	NA	0.24	2.406	20.40	7.00
29.700	16.80	0.00	16.80	2.8619	0.00050	NA	NA	NA	0.26	1.776	20.33	6.99
Q30-10 Flow												
44.390	15.47	0.00	15.47	.1547	0.00092	NA	NA	NA	0.27	1.150	20.05	6.99
39.220	26.48	0.00	26.48	1.3149	0.00058	NA	NA	NA	0.32	1.793	20.24	7.00
29.700	29.39	0.00	29.39	2.8619	0.00050	NA	NA	NA	0.34	1.346	20.20	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.8	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.4	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07D	9361	SWATARA CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
44.390	Monroe Valley	16.91	50	16.91	50	0	0
39.220	Nor Leb Co Auth	16.11	50	16.2	50	0	0
29.700	Fort IndianTG	16.9	50	16.42	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
44.390	Monroe Valley	1.89	25	1.89	25	0	0
39.220	Nor Leb Co Auth	1.86	25	1.86	25	0	0
29.700	Fort IndianTG	1.89	25	1.87	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
44.39	Monroe Valley	25	25	25	21.76	5	5	3	10
39.22	Nor Leb Co Auth	25	25	25	21.76	5	5	3	10
29.70	Fort IndianTG	25	25	25	21.76	5	5	3	10

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07D	9361	SWATARA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
44.390	0.100	20.069	6.985
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
58.995	0.833	70.864	0.228
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.32	0.101	0.30	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.198	1.428	Tsivoglou	5
Reach Travel Time (days)			
1.385			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.138	2.29	0.27	8.21
0.277	2.25	0.25	8.23
0.415	2.22	0.22	8.23
0.554	2.19	0.20	8.23
0.692	2.16	0.18	8.23
0.831	2.13	0.17	8.23
0.969	2.10	0.15	8.23
1.108	2.07	0.14	8.23
1.246	2.04	0.12	8.23
1.385	2.02	0.11	8.23

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
39.220	0.850	20.325	7.001
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
80.421	0.926	86.820	0.272
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.33	0.234	1.31	0.718
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.051	1.077	Tsivoglou	5
Reach Travel Time (days)			
2.142			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.214	3.16	1.12	7.29
0.428	3.01	0.96	6.80
0.643	2.86	0.83	6.52
0.857	2.71	0.71	6.38
1.071	2.58	0.61	6.35
1.285	2.45	0.52	6.39
1.500	2.33	0.45	6.49
1.714	2.21	0.38	6.61
1.928	2.10	0.33	6.76
2.142	2.00	0.28	6.91

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07D	9361	SWATARA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
29.700	1.850	20.276	6.993
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
87.244	0.951	91.777	0.288
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.49	0.341	1.65	0.715
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.903	0.988	Tsivoglou	5
Reach Travel Time (days)			
1.593			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.159	3.30	1.47	6.22
0.319	3.13	1.31	5.72
0.478	2.96	1.17	5.39
0.637	2.80	1.05	5.18
0.797	2.65	0.93	5.07
0.956	2.51	0.83	5.04
1.115	2.38	0.74	5.06
1.275	2.25	0.66	5.14
1.434	2.13	0.59	5.25
1.593	2.01	0.53	5.39

C. TMS Calculation Results

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Fredericksburg Camp Strauss Monroe Valley S** NPDES Permit No.: **PA0247570** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.1	100	6.45						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		801									
	Chloride (PWS)	mg/L		293									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		49.3									
	Fluoride (PWS)	mg/L											

Stream / Surface Water Information

Fredericksburg Camp Strauss Monroe Valley STP, NPDES Permit No. PA0247570, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Swatara Creek** No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	009361	44.39	417	170			Yes
End of Reach 1	009631	39.22	392	291			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	44.39	0.066										100	7		
End of Reach 1	39.22	0.066													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	44.39														
End of Reach 1	39.22														

Model Results

Fredericksburg Camp Strauss Monroe Valley STP, NPDES Permit No. PA0247570, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.271 Analysis Hardness (mg/l): 100 Analysis pH: 6.95

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 6.99

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

☑ ***CRL*** CCT (min): 68.261 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		Concentration Limits						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable